



EXPLORING THE RELATIONSHIPS AMONG SERVICE QUALITY, SATISFACTION AND LOYALTY IN THE STUDENTS OF MEDICAL EDUCATION

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ABSTRACT

Student loyalty in higher education sector helps college administrators to promote and establish student centric programs. The present study is focused on to examine the role of student experience as a mediator between institutional quality and student loyalty. 200 Management final years students covering four universities are taken as sample for the study using stratified random sampling method. A structured questionnaire is supplied to collect the data. The statistical tools and techniques viz., KMO Bartlet test, factor analysis, reliability test, correlation and multiple regression models are used with SPSS 24 package and the results are presented in a meaningful

format. The study revealed that institutional quality significantly influences the student experience and consequently student experience influences the student loyalty. The development strategies and student loyalty programs are suggested at the conclusion of the study.

Keywords: Service Quality, Student Loyalty, Student Experience, Management Education.

Cite this Article: K. Bhaskar, T. Sreenivas. (2024). Exploring the Relationships Among Service Quality, Satisfaction and Loyalty in the Students of Medical Education. *International Journal of Research in Management Sciences (IJRMS)*, 12(1), 13–25.
<https://iaeme.com/Home/issue/IJRMS?Volume=12&Issue=1>

1. INTRODUCTION

Service quality, trust, satisfaction, and loyalty are interconnected factors that play crucial roles in shaping students' experiences in medical education. Research indicates that perceived service quality positively influences student satisfaction, which in turn affects trust and loyalty (Çerri, 2012; Rojas-Méndez et al., 2009). In the context of medical education, service quality encompasses various aspects, including academic quality, facilities, and industry interaction (Nguyen et al., 2024). Trust emerges as a critical mediator between service quality, satisfaction, and loyalty. Studies show that trust in the institution and its services significantly impacts student loyalty (Alkraihi & Ameen, 2021). In medical education, where patient care is paramount, trust in the quality of relationships between students and faculty/staff is essential for developing students' affective commitment and satisfaction (Snijders et al., 2021). Interestingly, some research suggests that service quality and student satisfaction may not directly translate into loyalty, but rather indirectly through the mediation of trust and commitment (Rojas-Méndez et al., 2009). This highlights the complexity of the relationship between these factors in educational settings. Additionally, the university image can moderate the relationship between student satisfaction and loyalty, emphasizing the importance of institutional reputation in medical education (Nguyen et al., 2024). In conclusion, to foster student loyalty in medical education, institutions should focus on enhancing service quality, building trust, and ensuring student satisfaction. By adopting a relationship marketing perspective and emphasizing the quality of student-staff relationships, medical schools can

create a positive learning environment that promotes long-term student loyalty and engagement (Rew et al., 2023; Snijders et al., 2021).

2. OBJECTIVES OF THE STUDY

1. To examine the impact of service quality, student satisfaction on the student loyalty.
2. To measure the mediation student satisfaction between service quality and student loyalty.

3. LITERATURE REVIEW

A. Service quality and student satisfaction

Service quality and student satisfaction are crucial aspects of medical education, with significant implications for both students and institutions. Research indicates that high-quality service to students is essential for maintaining competitiveness in the higher education market (Mihanović et al., 2016). In medical education specifically, satisfaction evaluation is widely used to improve healthcare service quality and obtain better health outcomes (Meng et al., 2018). The factors affecting student satisfaction in medical education are multifaceted. For first-year students, course satisfaction, a sense of belonging, and citizenship knowledge and skills are the best determinants of overall satisfaction (Al-Sheeb et al., 2018). In the context of business education, which can be applied to medical education, seven factors influence student evaluations of service quality: reputation, administrative personnel, faculty, curriculum, responsiveness, physical evidence, and access to facilities (Leblanc & Nguyen, 1997). Interestingly, there are some contradictions in the research findings. While Mihanović et al. (2016) suggests that student satisfaction with housing does not affect the satisfaction with the quality of student life, other studies emphasize the importance of environmental factors. For instance, Hezam (2023) indicates that the environment is of utmost importance in evaluating service quality in higher education. In conclusion, maintaining high service quality and student satisfaction in medical education requires a comprehensive approach. This includes focusing on academic factors such as curriculum and teaching methods, as well as non-academic aspects like the learning environment and support services. Institutions should also consider implementing quality assurance processes, such as those outlined in the King Abdullah II Award for Excellence, which have been shown to positively impact patient satisfaction in healthcare settings (Abu-Rumman et al., 2021). By addressing these various factors, medical

education institutions can enhance student satisfaction, improve learning outcomes, and ultimately contribute to better healthcare service quality. Similar results were found in case of Subbarayudu, Y., & Ellaturu, N. (2021).

B. Service quality and student loyalty

Service quality plays a crucial role in fostering student loyalty in medical education. Studies have shown that perceived service quality indirectly influences student loyalty through mediating factors such as satisfaction, trust, and commitment (Rojas-Méndez et al., 2009). In the context of higher education, including medical programs, the quality of teaching and students' emotional commitment to their institution are particularly important for developing loyalty (Hennig-Thurau et al., 2001). Interestingly, while service quality and student satisfaction are important, they do not directly translate into loyalty. Instead, factors like university image and switching costs also play significant roles (Ali et al., 2021). In medical education, where programs are often lengthy and intensive, these factors may be especially relevant. Additionally, specific dimensions of service quality in higher education have been identified, including academic aspects, non-academic aspects, programming issues, facilities, and industry interaction (Nguyen et al., 2024). For medical schools, the quality of clinical training facilities and interactions with healthcare industry partners may be particularly important. In conclusion, fostering student loyalty in medical education requires a multifaceted approach. While delivering high-quality educational services is crucial, institutions must also focus on building trust, commitment, and a positive image. Medical schools should pay attention to both academic and non-academic aspects of service quality, including the quality of teaching, facilities, and industry partnerships. By addressing these factors comprehensively, medical education institutions can enhance student satisfaction and ultimately cultivate long-term loyalty among their students.

C. Student satisfaction and loyalty

Student satisfaction and loyalty are crucial factors in medical education, with several studies highlighting their importance and determinants. Research indicates that student satisfaction is a major driver of student loyalty in educational institutions (Rojas-Méndez et al., 2009; Thomas, 2011). In medical education, factors influencing student satisfaction include perceived service quality, trust, and commitment (Rojas-Méndez et al., 2009). Lecturers' competencies, particularly their knowledge, credentials, industrial experience, and motivation, significantly impact student satisfaction and loyalty (Newaz et al., 2020). Additionally, the institution's image plays a vital role in predicting perceived value and student satisfaction

(Brown & Mazzarol, 2008). Interestingly, some studies reveal contradictions in the direct relationship between satisfaction and loyalty. While some research suggests a direct link (Thomas, 2011), others indicate that perceived service quality and student satisfaction do not translate directly into student loyalty but are mediated by trust and commitment (Rojas-Méndez et al., 2009). The quality of college life, encompassing need satisfaction and positive experiences, has also been identified as a mediator between student satisfaction and loyalty (Yu & Kim, 2008). In conclusion, fostering student satisfaction and loyalty in medical education requires a multifaceted approach. Institutions should focus on enhancing service quality, building trust, and maintaining a positive image. Competent and motivated faculty, along with a supportive learning environment, are crucial. Additionally, considering factors like university switching costs (Ali et al., 2021) and the quality of both "humanware" and "hardware" (Brown & Mazzarol, 2008) can contribute to a comprehensive strategy for improving student satisfaction and loyalty in medical education.

D. Mediation of student satisfaction between service quality and student loyalty

Student satisfaction plays a pivotal role in mediating the relationship between service quality and student loyalty. Research consistently demonstrates that higher levels of service quality led to increased student satisfaction, which, in turn, fosters greater loyalty. This mediation effect is supported by multiple studies. Phawitpiriyakliti & Terason, (2024) found that service quality significantly influences student satisfaction, which then affects loyalty. The study emphasized that service quality does not directly impact loyalty but works through the mediation of satisfaction. Annamdevula & Bellamkonda, (2016) explicitly tested the mediation model and confirmed that student satisfaction mediates the relationship between service quality and loyalty. The study also highlighted the influence of demographic factors like age and gender on perceptions of service quality and satisfaction. Yidana P., Bawa G.M., Gariba H.A., Adabuga J.A. (2023) revealed that students' experiences of service quality directly affect their satisfaction levels, which in turn significantly predict their loyalty. The study also noted that students' expectations of service quality are often higher than their actual experiences.

Table 1: Key Findings on Service Quality, Trust, Satisfaction, and Loyalty

Study Focus	Key Findings	Citation	Proposed Hypotheses
Direct effects	Service quality impacts student satisfaction	Subbarayudu, Y., & Ellaturu, N. (2021).	<i>H1: service quality is positively related to student satisfaction</i>
	Service quality impacts student loyalty		<i>H2: service quality is positively related to student loyalty</i>
	Student satisfaction impacts student loyalty		<i>H3: Student satisfaction is positively related to student loyalty</i>
Mediation Role of Satisfaction	Student satisfaction mediates impact of service quality on loyalty	(Phawitpiriyakliti & Terason, 2024) (Annamdevula & Bellamkonda, 2016)	<i>H4: Student satisfaction mediates the link between service quality and student loyalty</i>

4. MATERIALS AND METHODS

This study was designed to identify the medical graduate perceptions of service quality that predict student loyalty with help of student satisfaction. The population from which the sample was derived in this study consisted of all the full-time medical graduate students enrolled at four oldest universities in the state of Andhra Pradesh. The multi stage random sampling technique is adopted to pick up the sample and collected the responses with a well-structured questionnaire. The present study employed set survey instruments adopted from previous studies.

Table 2: scales used for the study

Measure	Scale	Authors
Service Quality	ServQual	Zeithaml, V.A., Berry, L.L. and Parasuraman, A. (1996),
Student Satisfaction	Satisfaction	Brady, M.K., Cronin, J., and Brand, R.R. (2002),
Student Loyalty	Behavioral Intention	Zeithaml, V.A., Berry, L.L. and Parasuraman, A. (1996),

All these constructs used a 5-point Likert scale scoring ranging from 1= strongly disagree to 5= strongly agree. A total of 398 fully filled in questionnaire responses from the respondents are considered for the study and stratified random sampling is applied for the data collection. analysed using appropriate statistical techniques.

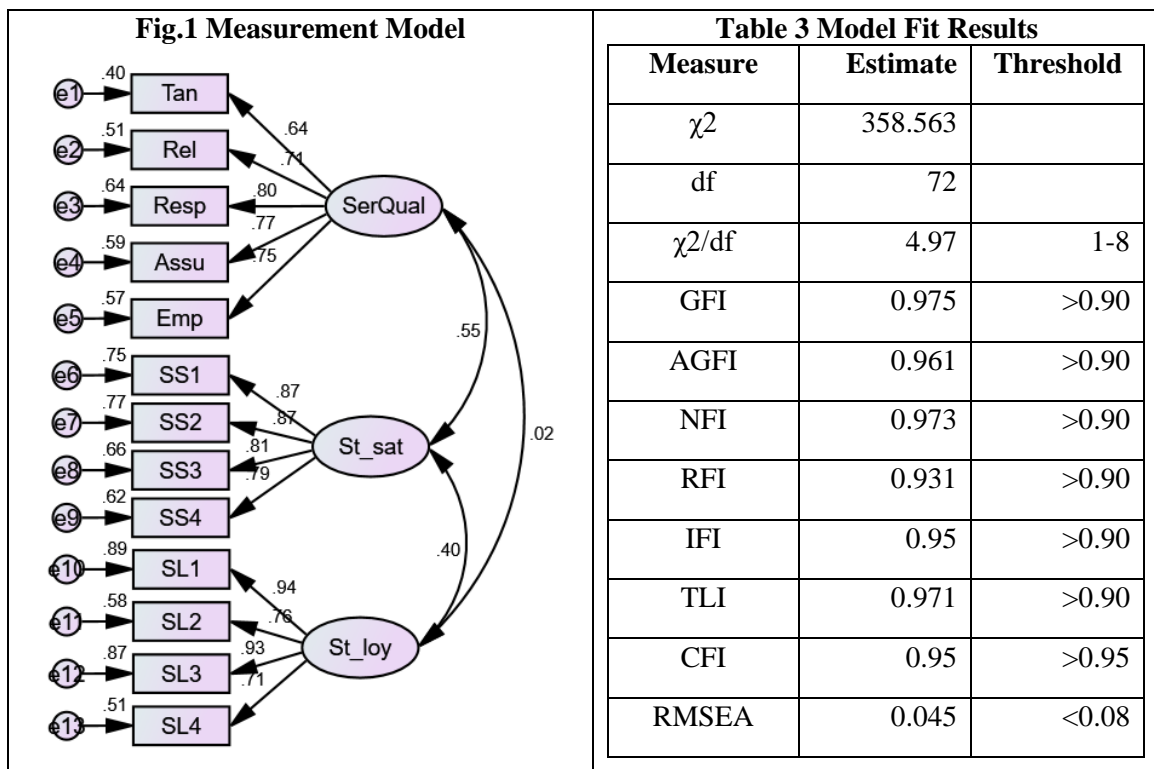
5. ANALYSIS AND INTERPRETATION

The structural equation Modeling (SEM) approach, which uses multivariate statistical techniques, was applied to test the proposed model and hypotheses by following the guidelines of Hair et al (2017). SEM consists of two elements, a measurement model, and a structural model. Confirmatory Factor Analysis was used with help of AMOS 25 for the analysis of both models.

Analysis of Measurement model

The measurement model examines the relationship between indicators and constructs. The study integrated constructs like service quality, institutional image, student satisfaction, and student loyalty into a single measurement model. the development of the measurement model was carried out by a foot stepping into the guidelines provided by Hair et al (2006).

The individual questionnaire items were aggregated into specific factor groups. The following four rules were utilized for the hypotheses' structure: (1) each observed variable has non-zero loading on the latent factor within the structure, but has a loading of zero towards other latent factors; (2) no relationship in errors of measurement among observed variables; (3) no relationship among residuals of latent factors; and (4) no relationship among residuals and measurement errors.



The measurement model was estimated using the Maximum likelihood method with the help of AMOS 25. Model fit results, Construct Reliability, convergent validity, and discriminant validity were applied to estimate the measurement model.

Various fit indices like Absolute fit, Incremental, and Parsimony fit indices were considered for the assessment of the model fit of the measurement model (Hair et al., 2008). Absolute fit indices like Goodness of Fit Index (GFI) and Root Mean Square Error Approximation (RMSEA) values 0.975 and 0.045 were above requirement 0.90 and between 0.03 to 0.08 respectively, indicating the model theory fits the sample data. The incremental Fit indices like Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Normed Fit Index (NFI) values were above 0.90 showing that the model fits relative to the alternative baseline model. the Parsimony fit indices like chi-square/df value 4.69 was in between 1 to 8 show that the measurement model is acceptable (Hu and Bentler, 1995; Hair et al., 2008).

Table 4: Construct Reliability and Convergent Validity

Item	Estimate	S.E.	C.R.	P	AVE	CR
Service Quality (Second Order Factors)					0.708	0.935
1 Tangibility	0.874					
2 Reliability	0.881	0.049	20.189	***		
3 Responsiveness	0.733	0.044	18.224	***		
4 Assurance	0.888	0.05	20.545	***		
5 Empathy	0.884	0.038	26.071	***		
Student Satisfaction					0.512	0.805
SS1 I did the right thing by choosing my university	0.702					
SS2 I am pleased to be enrolled as a student at my university	0.651	0.076	11.862	***		
SS3 I am enjoying studying at my university	0.864	0.068	14.409	***		
SS4 I am happy with my experience as a student at my university	0.62	0.064	11.102	***		
Student Loyalty					0.588	0.843
SL1 Recommend your university to friends and relatives	0.873					
SL2 Say favorable things about your university to others	0.534	0.057	12.034	***		
SL3 Choose the same university again if you could start all over	0.981	0.044	26.036	***		
SL4 Attend the same university if you follow another course in future	0.584	0.05	13.459	***		

C.R. Critical ratio; CR Composite Reliability;

Construct Reliability sometimes called composite reliability is a measure of internal consistency of a particular scale just like Cronbach alpha (Netemeyer, 2003). The construct reliability values for all the constructs like service quality, institutional image, student satisfaction, and student loyalty have scored in the range between 0.80 to 0.94 which are above the standard requirement of >0.70. it denotes that the measurement model possesses reliability.

Convergent Validity was assessed through standardized factor loadings and Average Variance extracted (AVE). The resulted standard estimates of all the items of the measurement model and AVE values of the constructs range between 0.53 to 0.98 and 0.51 to 0.70 respectively, also meeting the minimum requirement of 0.50. It indicates measured variables of concern construct and shares a high proportion of variance in common (Byrne, 2010; Hair et al., 2008).

Discriminant validity was judged through comparison of Maximum Shared variance (MSV) with AVE or Square root of AVE with Inter construct correlations.

Table 5: Discriminant Validity

	CR	AVE	MSV	S_Q	S_S	S_L
S_Q	0.935	0.708	0.078	0.841		
S_S	0.805	0.512	0.253	0.202	0.715	
S_L	0.843	0.588	0.012	0.026	0.112	0.767

Both cases were met in the study i.e. The MSV values for all the constructs found greater than the AVE values of the concerned constructs and the square root of AVE values of all the constructs was greater than inter construct correlations. This indicates that the constructs were dissimilar in the model (Byrne, 2010; Hair et al., 2008).

Analysis of Structural Model

The structural model explains the relationship among constructs. The model explains the correlational links among observed variables like service quality and latent variables like institutional image, student satisfaction, and student loyalty. Service quality is treated as an exogenous variable, student loyalty is termed as endogenous variable and institutional image and student satisfaction are treated as mediating variables.

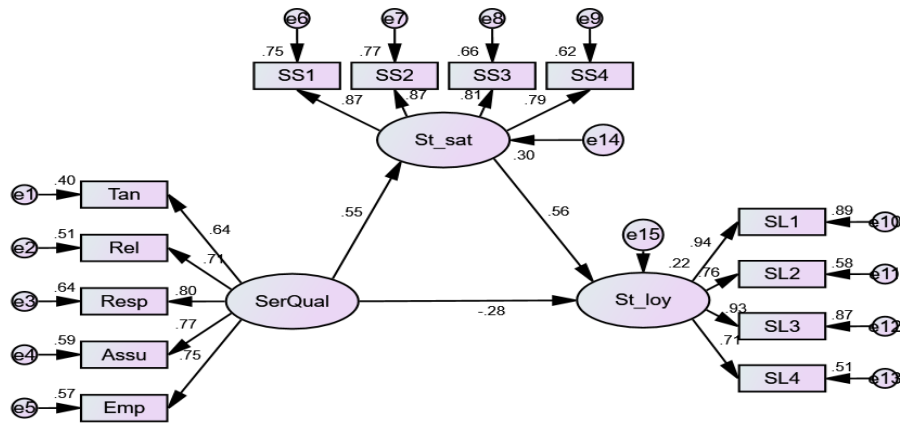


Fig 2 Structural Model

Table 6: Model Fit Results

Measure	χ^2	df	χ^2/df	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMS EA
Estimate	358.563	72	4.97	0.972	0.954	0.971	0.951	0.950	0.974	0.952	0.046
Threshold			01-08	>0.90	>0.90	>0.90	>0.90	>0.90	>0.90	>0.95	<0.08

Direct effects

The direct effects are pathways from the exogenous variable to the outcome variable without any intermediaries. The direct effects and hypotheses results connected to the structural model are presented in table 6.

Table 7: Direct Effects

H	Path	Estimate	S.E.	C.R.	P	Result
H1	SQ->SS	.596	.068	8.745	***	Supported
H2	SS->SL	.514	.074	6.999	***	Supported
H3	SQ->SL	.026	.059	.445	.656	Not Supported

The standardized coefficient values for the paths from service quality to Institutional Image (SQ->II) and service quality to student satisfaction (SQ->SS) 0.69 and 0.61 respectively were found significant (P-value 0.001) which denotes that the service quality possesses the direct effect on the institutional image and student satisfaction and hence, hypotheses H1 and H2 are supported. While, the standardized coefficient value -0.08 for the path from service

quality to student loyalty was not significant (p-value 0.113) and so, the framed hypothesis H3 was not supported.

Mediation effect

The mediation effect is the intermediary effect in the causal relationship between exogenous and endogenous variables. Institutional Image (II) and student Satisfaction (SS) are assumed as mediators in the relationship between service quality and student loyalty.

Table 8: Mediation effects

H	Path	Unstandardized Estimate	Lower	Upper	P-Value	Standardized Estimate	Result
H4	SQ --> SS --> SL	0.122	0.096	0.155	0.001	0.147	Supported

The unstandardized coefficient values for all the indirect paths from service quality to student loyalty through institutional image alone (0.274), student satisfaction alone (0.096), and institutional image and student satisfaction serially (0.422), are found significant (P-value <0.05). hence, hypotheses H4, H5, and H6 are supported. Among the indirect effects' serial mediation of institutional image and student satisfaction between service quality and student, loyalty was found strong than other effects.

6. CONCLUSION

From the study, it is evident that, the institutional service quality is not influenced the student loyalty directly. The involvement of student experience about the institutional quality may tend to change in the scenario. A positive level of student experience with the institutional service quality factors viz., academic services, administrative services and complementary services significantly influences and as a consequence leading to student loyalty. Hence, the study is highlighted the importance of student experience in driving student loyalty. In order to improve the student loyalty, the institutions should focus more on the effective delivery of services to the students. The student loyalty programs like student reward system, student career counselling, student recreation and placement activities are advised to the institutions.

7. LIMITATIONS OF THE STUDY AND SCOPE FOR FUTURE RESEARCH

As similar to other research studies, this research also has several limitations. This paper investigates only the impact of Institutional quality and Student experience on quality of student

loyalty. The study limit to consider the perceptions of the student related to management colleges of Andhra Pradesh.

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